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Unveil the Mysterious Reality of Management Healthcare in China: A Case Study on Institutional Arrangement

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by

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DEDICATION

I dedicate this to my mother and father, for their endless love and support, and for giving me this fantastic educational opportunity at Scripps College. I would also like to thank all my classmates and friends who inspired me in class, supported me when I was sad and stressed. I would also like to thank all professors that I had classes with during my study at Scripps College, for inspiring me in different ways to become a more critical thinker and a more well-rounded, intellectual woman.

PREFACE

This thesis identifies and analyzes current problems in the healthcare market in China. Although many health indicators of China such as life expectancy and child mortality rates have improved significantly and suggest that the healthcare reform in China is successful, there have been many more reports of patient's violent attack towards the doctor, the sudden death of doctors, and decreasing doctor supplies that suggest otherwise. I observed that the relationship between doctors and patients are intense, doctors experience enormous working pressure, and many doctors are leaving the market. It makes me wonder how did government fail to improve its healthcare quality while health indicators suggest huge improvements. This thesis mainly focuses on how institutions contribute to the market inefficiencies. I hope this thesis will provide some insights for future reform policies.

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Introduction

Health is one of the few goods that everyone cares about. For economists, the good physical health of citizens is the precondition for economic and cultural prosperity. For politicians, good healthcare delivery system enhances citizens' general well-being and the legitimacy of the politician. For individuals, good health entails the ability and freedom to pursue their ambitions or just to enjoy life. However, establishing and maintaining healthcare system is easier said than done. China, for example, experienced a collapse of its healthcare system in the 1980s, as the country went through a significant economic change. It has been trying to reform the system ever since. However, while World Bank data suggests China is making considerable progress regarding its life expectancy rate, child mortality rates, and out-of-pocket medical spending, Chinese citizens found the healthcare service more expensive and less satisfying. Horizon China Research and Consultation Group researched in 2010 and found that the public complaints about Healthcare reform and affordability in urban areas increased from 21.1% in 2007 to 34.8% in 2009. At the same time, more and more violent attacks towards doctors have been reported on media and 500,000 out of 750,000 medical school graduates each year choose careers other than as doctors[1]. This thesis aims to explore the institutional reasons that have prevented the Chinese government from achieving its intended goal in its healthcare reform—to make medical care cheaper and more accessible to everyone.

This thesis has four sections. The first includes some necessary background information of the healthcare reform and the current healthcare market problem in

[1]Supplementary data are available on Dingxiang Research Center Website (http://vote.dxy.cn/report/dxy/id/492740)

China. The second provides a brief literature review on institutional roles and powers that help contextualize the inner mechanism of how institutions influence individual behavior, shape the political and social structure and cause problems. The third incorporates the theories from the second section and analyzes issues within different levels of SHI scheme and its interactions with other institutions. The last section includes more reflections on factors that guided government's decisions and provides some policy suggestions on future healthcare reform in China.

I. Background Information

a) History

The medical care delivery system in China underwent significant changes in the 1980s and early 1990s. Before that time, China had a very fixed system for healthcare. It had the Government Insurance (GMI) for employees in government and public institutions, Labor Insurance (LI) for workers in state-owned enterprises, and the Cooperative Medical Scheme (CMS) for rural residents. Each scheme was specifically tailored to fit the needs of different groups of people. Back then, the government was the healthcare provider and implemented medical centers in each state-owned enterprise and most urban communities. Therefore, if an employee in a state-owned company got sick, he or she could go to the health center and get treated for free. There is no concept such as reimbursement.

Moreover, because the funding sources are entirely independent of one another, which also sets barriers for people to access medical care, hospitals of GMI

are not overwhelmed by patients. For rural residence, the Cooperative Medical Scheme relied heavily on "barefoot doctors." This type of doctors are initially farmers who received some medical training and are willing to help rural communities. They received additional training from year to year. That is why the medical insurance system still worked pretty well even with far fewer trained doctors and with the baby boom in the late the 1960s because the government had complete control over medical cost and the majority of citizens are either in rural areas or state-owned company. But as the economy changed from planned to market economy, and as the population grows in the 1980s, this system was no longer effective because many non-state own companies emerged and people who worked in those firms did not qualify for any existing scheme of medical care.

By 1998, 47% of all residents, and 87% of rural residents had no health insurance. [2] More specifically, the supply of doctors could not cope with the significant increase in the demand for doctors, and the central government found it inappropriate to leave healthcare unchanged while free-market principles guide most of the market. The government then reduced financial investment for health facilities and allowed them to earn more money from service fees and sales of medication, but refused to let doctors shift freely from the public to the private sector. This decision later caused significant drug price discrepancy between hospitals and local pharmacies stores, which I will mention in detail very soon.

The central government then adopted another system called Social Health Insurance (SHI) to cope with the political and economic changes. This system, very similar to Health Maintenance Organization (HMO) in the United States, provides

[2] LIU Kai (P1)

healthcare service for a fixed annual fee[3]. Individuals pay part of the fees, and employers pay the rest. SHI agencies corporate with some health facilities and manage to provide medical care at a lower price. It acts as a third-party agent that interacts with both health facilities and patients. The central government believed that the free market economy would exacerbate the impact of imbalance of power and asymmetry of information between doctors and patients. More detailed mechanism of SHI will be mentioned in later sections.

b) Different Types of Health Facilities

Together with the adoption of SHI, the Chinese government also created a hierarchical medical care system with an intention to better allocate medical resources. It distinguished many types of health facilities: hospitals, grassroots healthcare institution, and other health institution such as centers for disease control and pharmacies. For this study, we will only focus on hospitals. In general, there are primary, secondary, and tertiary hospitals, which are all public hospitals. Although there are some private hospitals, the general public doesn't trust them as much. Moreover, the insurance that most people purchase does not give them good reimbursement rate at the private hospital. Therefore, public lose another incentive of going. Primary hospitals exist in rural areas, normally with less than 100 hospital beds. Secondary hospitals can exist both in rural or urban areas. They have more than 100 but less than 500 hospital beds. Tertiary hospitals have more than 500 hospital

[3] More information on annual fixed cost can be found at BBC News-G-I-Health Maintenance Organization's website (http://news.bbc.co.uk/2/hi/in_depth/americas/2000/us_elections/glossary/g-i/652064.stm)

beds. Obviously, more hospital beds also indicate more medical resources and more prestigious doctors. Until 2013, there are 1082 tertiary hospitals in China[4]. As it turns out, those individuals with SHI insurance tend to go to tertiary hospitals more often than they go to primary and secondary hospitals.

c) Current Market Problems

In general, if we look at some indicators that economists often use to measure development, China is doing a great job compared to its neighbors. India[5], another fast-paced developing country with large growing populations in Asia, is not doing nearly as well as China regarding its life expectancy. The World Bank data shows that from 1940 to 2014, China's life expectancy rates increased from 43.778 in 1960 to 76.117 in 2015(growth rate 73.8%) and that of India increased from 41.17 to 68.33 (growth rate 66%) during the same period. Moreover, China's child mortality rate per 1000 live births decreased from 119.4 to 9.9. Concerning the insurance coverage rate, the percentage of people who are insured was over 90% in 2010, claimed the government.[6] The out-of-pocket spending on medical care decreased from 93.783% in 1995 to 72.374% in 2014[7]. All these data suggest that the adoption of SHI has been very successful in improving the quality of healthcare and its accessibility to the public in China. However, other phenomena indicate otherwise. Three notable things in current markets are in line with the paradox: 1) increasing sudden death of doctors;

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[4] The data is collected by China Medical Care and Birth Control Department, and is released in its 2014 annual Report. More data can be found on its website (http://www.moh.gov.cn/guihuaxxs/s10742/201405/886f82dafa344c3097f1d16581a1bea2.shtml) English translation is currently unavailable.

[5] The comparison with India uses data from the World Bank (https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=CN-IN)

[6] News Report of Ministry of Health of China (2011) from (http://www.moh.gov.cn/publicfiles/business/htmlfiles/mohncwsgls/s3578/201103/50979.htm)

[7] World Bank Data can be found at (https://data.worldbank.org/indicator/SH.XPD.OOPC.ZS?locations=CN)

2) increasing violence towards doctors; 3) over-prescription of medications; and 4) decreasing supply of doctors, especially in primary and secondary hospitals.

First, there has been increasing number of doctors who experienced sudden death**.** Ever since 2012, the number of reported deaths has risen by more than 50%. A detailed report done by the *Chinese Medical Journal* in 2016 listed 100 doctors that have suffered certain deaths in 2015 and included their gender, age, department, working location, type of hospital, and cause of death. Surprisingly, almost 90% of doctors in the report were below age 45. More than half of them worked more than 12 hours per day before death. 86% of the doctors who died were working in tertiary hospitals. Doctors who worked in anesthesiology and orthopedics departments were more likely to die. The cause of death for 24% was the heart attack, yet the cause of death was undiagnosed for 56%. One apparent reason is the enormous working pressure and long working hours experienced by the doctors. Although the sample size of this report is relatively small, Dingxiang Research Center, one of the most popular independent research center in China, conducted a self-report project that includes 30,000 doctors working in different department and locations of China and got a similar result—that doctors work too much in China.

Second, there has been increasing violence against doctors and medical staff. According to the National Ministry of Health, this type of violent incidents increased from 10,000 in 2007 to more than 17,000 in 2010[8]. In this situation, violence includes verbal abuse and threat, physical attack, destruction of property, and even murder. Most people who are involved in these attacks are from rural areas, and it is partly

[8] More details can be found on The Economist website. (https://www.economist.com/node/21559377)

due to the lack of education, and general social perception of doctors. One typical case is an attack that happened in Shangdong Province on June 15, 2017. A truck driver got into an accident on a freeway and was sent to a hospital immediately. However, due to the severe injury, doctors could not save him. His family members then organized a group of people to come to the hospital and blocked the front gate of the hospital with several trucks. They then went in front of the ICU (Intensive Care Unit) to abuse and attack medical staff. Because this violent attack, this hospital in Shandong shut down for 20 hours. The family members asked for 300,000 RMB for compensation. They believed it was utterly the hospital's fault that caused them to lose their family member. The principle of the hospital revealed the interview later that they had to give money to them to keep the normal operations of the hospital because while the violent attack happened, 100 other patients need to see doctors. The police then arrived and arrested six people who participated in this brutal attack and obligated them to return the money.

There are many other incidences like this, some of the more severe ones involve murdering medical staff. People who start violent attacks tend to be people from rural areas. Although their violent actions are partly due to extreme sadness of losing family members, this increasing trend of violence also reveals a more profound social problem of China that the citizens, especially rural residents, lack public education and have erroneous perceptions about doctors. Many rural residents don’t know much about their health insurance plan, how to get reimbursed, what is covered, and that the paperwork they sign before any surgery waives doctors’ responsibility. They also don't respect doctors very much because they believe doctors are merely

public servants who need to satisfy their need in all circumstances. If doctors fail them in any way, they have the right to revenge and punish doctors in any way they want. However, this is incorrect.

Third, it follows that the phenomenon of over-prescription is widespread. According to the Dingxiang Research Center, the average annual salary for doctors in China is 11,638 USD, which is not much higher than that of a hotel receptionist. Especially with the overworking problem and increasingly violent actions, there are more risks to be a doctor. However, it is implausible that existing doctors will exit the market because it is too costly. More specifically, they spend at least seven years studying in medical schools and hospitals to become doctors. Their expertise is not going to add much value if they exit the medical field. Since the opportunity cost of leaving the market is too high, they will try to maximize their benefit to compensate their low salaries and other risks. As mentioned in the background section, after the 1980s, the central government cut off the financial aid to health facilities but allow them to make money from service fee and medications. That is when medicines become an essential way to earn extra incomes. In China, it is common that for the same drug, the price in the hospital is about 15% higher than that in the pharmacies store. Doctors will very often prescribe unnecessary medications or the more expensive drugs to patients.

There are many reasons why patients are okay with the over-prescription. First, some people may not be aware of the price difference between hospitals and pharmacy stores. Second, it is also convenient for them to buy medicines in hospitals because their search cost is lower. In economics, rational consumers will

continuously seek for a better product until the marginal cost of searching exceeds the marginal benefit. In this case, some patients find it too time-consuming to go to another pharmacy store as they have already spent so much time in the hospital. Moreover, some hospitals have their research center and their unique formula for specific diseases. The mentality of patients is that if they are buying the self-developed medicines in the hospital anyway, they might just as well purchase everything else that doctor prescribed, even if it is 15% more expensive.

The most up-to-date information indicates that the government just enacted a policy that closed the gap between the prices of most medicines in the hospital and pharmacies. This policy, to some extent, alleviates the problem and avoided some inefficiency of the market, but it does not change the core problem. According to my interview with an employee who works at State Drug Administration in Chongqing, doctors have different ways to get around it. As she says, drug companies usually corporate with health facilities and they share some parts of the revenue with doctors for each drug they sell. The selling price is cut down by 15% means the amount doctors can receive is 15% less. There is still a gap between the cost of medication and the selling price. By prescribing more additional medicines to patients compensate their 15% loss. Moreover, they can ask patients to do some unnecessary CT, X-Ray, and examination fee. "Until there is a very well-developed system that can prevent all those things from happening, I am not very confident how effective the price drop is" (Y. Zhang, personal communication, January 25th, 2018). My interview also included some medical staffs who work at one Tertiary hospital in Chongqing. When I asked him about this policy change, he said: "even though the

state is going to provide some funding to compensate the loss of interest in medicine sale, it doesn't mean doctors can be better off. The funding is to the health facility in general, not doctors directly". (Y. Zhang, personal communication, March 22nd, 2018) It implies if corruptions within the hospital system exist, which is very likely, the decrease in drug price wouldn't be very helpful for doctors.

Fourth, the number of medical school graduates are decreasing significantly year by year. As Dingxiang Research center reveals, among 600,000 medical school graduates in 2012, only about 100,000 students end up being doctors. It also seems intuitive based on everything else that is happening in the market. In general, each person does cost and benefit analysis before making any decisions. More and more doctors think that all risks of becoming doctors are not fully compensated by their salary and bonus, neither do they receive enough respect from patients. China is, in fact, one of the countries where doctors get paid the lowest wages[9]. However, this problem is very severe if China wants to keep reforming the healthcare system, as doctors are one of the most critical components in healthcare delivery system. When the supply of doctors decreases, the remaining doctors will suffer more because they need to see more patient per day. With higher demands for medical treatment, doctors are more likely to make mistakes during their work, which will cause more patients act more violently towards them, and it will further deter new doctors to enter the market and stimulate existing doctors to leave the market. These problems are all

[9] More detailed comparison can be found Doctor CPR's website, which is trusted by 300,000 physicians. It takes many factors into consideration: varying cost of living between countries, differences in tax rates between countries, different demand for medical jobs in each country, etc. (https://www.doctorcpr.com/blog/countries-where-doctors-get-paid-the-least/)

intimately connected to each other. With no further intervention, this loop will go on and reinforce itself.

II. Literature Reviews

The current problems that I identified involve many departments, individual decisions, and other factors. The invisible hand that is contributing to everything is in fact institutions. Although our understanding of institutions today has not been advanced enough to accurately determines the roles of institutions in each society, it will still give us a lot of insight about potential pitfalls of institutional reforms, or help us understand the structural reasons for economic success. Acemoglu and Robinson (2008) argue that economic indicators such as income per capita or savings rate are not sufficient in explaining the economic development. Although higher income per capita or higher savings rate does imply more human capitals, better living standards, and more political resources, etc., it does not help us understand why some countries are more developed than others, or why some are having significant growth while others are experiencing political instability. Although many current empirical studies don't show a direct correlation between the economic status of a country and its institutions, as Dani Rodrik points out, it is still possible to do a backward explanation: trace the cause to institutions based on what is happening in real world.

We need the same logic to truly understand all problems of Chinese healthcare market. Instead of blaming the market inefficiency to angry patients or doctors' lack of ability to carry out excellent services, we should look at institutional reasons that

shape the status quo. Especially for countries like China, where political power is very centralized, many things are beyond individuals control. The government intervention is much more present in various aspects of society—such as in education, healthcare, financial markets, etc. Had the medical insurance system been different, such as setting barriers to enter tertiary hospitals, the tertiary hospitals are not going to be as crowded, and there will be less angry patients, and doctors have time to serve each patient well. However, we need to acknowledge the fact that Chinese citizens are less free both economically and socially compared to those in most of the western countries[10]. It is therefore essential to find reasons in institutions such as government and other political and social structures. However, institutions are vague in a sense that most people are not sure what roles can institutions play, what powers do institutions have, and through what mechanisms can institutional powers be emancipated.

1) Institutional Roles

Douglass North propose the definition of an institution as "the rules of the game in a society, or more formally, are the humanly devised constraints that shape human interactions"[11]. Institutions exist in places such as education department, schools, DMV, hospitals, etc. and serves as structural support for those departments and organizations. One crucial feature of institutions is that they shape people's behaviors through incentives. For example, if SHI agency wants to encourage more people to go to the Primary and Secondary hospital, they can raise the reimbursement

[10] 2018 Economic Freedom Index (https://www.heritage.org/index/ranking)
[11] Acemoglu and Robinson (2008) P2

rate in primary and secondary hospitals. Ideally, some people who care about out-of-pocket spending on healthcare will change their behavior, and thus SHI can relieve the pressures experienced by the Tertiary hospital. When an institution does not achieve its intended goal, it means it fails to provide enough incentives to its targeted group. In general, there are two types of incentives failures. First, the institution itself fails to give efficient, direct orders. Second, the effectiveness of incentives heavily relies on multiple institutional interactions. In the second case, the central government may have the right guidelines, but the institutions below the central ones can have very inefficient communications that make it impossible to achieve the intended goal. In this thesis, we will focus on whether SHI agencies and central government provide adequate incentives for their targeting groups of people to ensure an efficient market outcome. I argue that both types of incentives failures are present in Chinese Healthcare market, but the second one is more dominant.

Acemoglu and Robinson also highlighted that there is not a universal function that institutions need to fulfill. Instead, local economic and social context determines the purposes of an institution and its effectiveness. This idea will help us prioritize different factors that contribute to the problem. By considering historical facts, we will have a better understanding of whether current problems are temporary because of structural change or essential that need to be fixed right away. For example, back in 1949, when the Republic of China was established, China had severe financial crises and precarious, unstable political situation due to World War II and Civil War.[12] The government's absolute control over the means of production was efficient

[12] Office of the Historian, more detail at (https://history.state.gov/milestones/1945-1952/chinese-rev)

in minimizing social problems and generating economic growth back then because it controlled the wage and unemployment rate. This political reality shaped healthcare schemes in the planned economy, and later economic reform paved the way for the market economy, which leads to the adoption of SHI. The policy can be effective right after the adoption, but it takes longer for the related organizations to adjust to the changes. Therefore, in later analysis, if problems are due to this type of changes, it shouldn't be the priority in policy design.

2) Institutional Powers

Acemoglu and Robinson well explained the importance of analyzing institutions in solving economic and social problems, and Michel Foucault (1998), a French philosopher, developed a theory that helps us contextualize the power of institutions in a different perspective. He sees the institution as one place that stores power and defines the truth in society. According to him, truth does not exist in an absolute sense, rather, it is told. The institutional setup determines what types of discourse it accepts and what function it serves in a particular context. For example, there is no absolute truth about the role of the doctor in society. The fact that Chinese central government claims that all tertiary hospitals public automatically constrain doctors in public sectors, which conveys a message to the public that doctors are public servants. The perception of doctors in the United States is very much different.

An institution also has mechanisms and instances that enables one to distinguish true and false statements and the means of sanctions under each scenario;

the techniques and procedures accorded value in the acquisition of truth[13]. One example is the written law. It identifies crime and sets punishments for each violation. According to him, power is reinforced or continuously redefined through institutions such as the education system, the media, or economic structures. The institution can also send messages in an invisible way and make people internalize them. Therefore, once a social norm is formed, it gets embedded in social and cultural life, and it will take even longer to eliminate. I will later show how the Chinese government shaped urban and rural development, which created a norm that makes the distribution of medical resources more difficult.

However, this is not to say that institutional power is necessarily negative; instead, it is a powerful tool that can help us rule the society. As Foucault points out, "we must make allowances for the complex and unstable process whereby a discourse can be both an instrument and an effect of power, but also a hindrance, a stumbling point of resistance and a starting point for an opposing strategy. Discourse transmits and produces power; it reinforces it, but also undermines and exposes it, renders it fragile and makes it possible to thwart"[14]. The use of power can be strategic: not only can we trace some causes back to institutions, but also we can try to solve the problems using institutional approaches. In next section, I will analyze the efficiency of institutions and their role in economic success by looking at whether an institution provided appropriate incentives to its targeted groups, if not, which type of incentive failure caused the problem.

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[13] Foucault, in Rabinow 1991
[14] Foucault (1998), P100

III. Unveil the Institutional Problems in Chinese Healthcare Market

Granted that many factors have contributed to the problems in Healthcare delivery system, I argue that the inefficient institutional arrangement is the critical factor. In this section, I will incorporate the theoretical frameworks that I laid out and carefully analyze the inner institutional mechanism that contributes to the current market failures. I will examine 1) institutional problems within SHI system itself; 2) power decentralization within SHI and between other departments; 3) market stigmatization for doctors; 4) inefficient urban vs. rural distribution of health resources; and 5) remaining problems of one-child policy. The scale of institution goes from small to large. The first two are pretty straight-forward, the last three are more about analyzing how central government's decision shapes social facts and, in turn, influence the Healthcare reform. After understanding what went wrong in each layer, we will be able to track down the real roots of the problem and thus have a better idea of how to reform in the future.

But first, it is necessary to give a brief introduction of SHI in China. In general, SHI does not have its own independent agencies. Instead, SHI department corporates with six big Chinese insurance companies[15] and entitle them to be SHI agents. These six companies add together shares 53.53% percent[16] of the insurance market, and they have many offices in different cities. In total, there are thousands of SHI offices in China. SHI agencies intend to serve as a mediating role to better enhance patients' negotiation power and create incentives for health facilities to act

[15] Six big insurance companies in China are: Taikang Insurance and Financial Service Group, China Life Insurance Company Limited., Ping An Life Insurance Company of China Ltd., New China Life Insurance Company Ltd., China Pacific Insurance (Group) Co., Ltd., and PICC Life Insurance Company Limited.

[16] More detailed data can be found on Sina News: (http://finance.sina.com.cn/money/insurance/bxsd/2018-03-13/doc-ifyscsmu9081231.shtml)

more efficiently. Essential duties of SHI agencies are to collect premiums and pool them, to sign contracts with health facilities, and to raise its own funding to ensure the reimbursement and generate its own revenue. Ever since the adoption of SHI, the government is no longer the provider of healthcare service, but merely a purchaser of such services. But it sets crucial guidelines about how insurance plans work.

The most visible character of Social Health Insurance plan is that each enrolled individual has one personal account and one pooling account. The fixed insurance fee each month is paid partially by the corporation where the person works, and partially by individuals. The part that is paid by corporations will go into the pooling account that SHI agencies can manage. It can be beneficial when an enrollee has big diseases. The reimbursement mechanism of Big Disease Insurance, which is part of the SHI benefit, is like this: for the total cost that is below 40,000 RMB, the pooling funds pay for 85% of the cost; for the amount between 40,000RMB to 80,000RMB, the insurance covers 90% of the cost; for the total cost that is above 80,000RMB, SHI agent draws from pooling funds and pays for 95% of the cost. The ceiling for each individual each year is 150,000RMB[17]. SHI really wants to make sure the out-of-pocket spending is low. The pooling funds of SHI also consists of some government subsidies, but the amount varies from city to city. The average payment by employers is about 20% in China, compared to HMO in US 6.2% and 8.65% in Japan[18].

One may criticize that the intervention of government is not necessary for this scenario because the competition among six insurance companies will eventually lead

[17]The source is from Official Website of SHI: (http://www.chashebao.com/yiliaobaoxian/17436.html)
[18] Li Mingfu (2018)

to an efficient market. However, it is not going to be that way because of China's deeply rooted political ideology. Although China has already adopted the free market principle, many fundamental things such as welfare system are still guided by communist ideologies. This ideology highlights that government' intervention is the best way to maximize social interest. Healthcare is a merit good that everyone in need should have equal access to, regardless of his or her wealth. If the government let those insurance companies compete freely, the price of medical care will probably exceed the national goals, which will hinder SHI's ability to deliver benefits to citizens.

Although the function of SHI agencies sounds very simple and practical in theory, it is hard to ensure the ideal performance because SHI system suffers from different types of incentive issues brought by inefficient institutional alignment. In this section, I will first explain the problem in Three Parties' System, and then discuss three other aspects of institutional inefficiencies related to SHI. I argue that the structure of SHI is too loose to force a real change and that SHI has very complicated interactions with other departments, and national context does not permit SHI's ideal performance. I will analyze from the most visible and smallest institutional level and then move up step by step, to provide a more thorough picture of the institutional problems.

1) Three Parties' System

Three Parties' System is the best starting point to analyze whether SHI is efficient. In the Three Parties' System, three essential players are doctors, patients, and SHI agent. SHI agent is the weak negotiator in this case. As we mentioned, its

goal is to control medical cost and avoid over-prescription of doctors. However, neither its interactions with doctors nor those with patients are ideal. Regarding its interactions with health facilities and doctors, the main mechanism of SHIs is to provide financial incentives for health facilities to plan their medical resources strategically.

SHIs have a global budget system where, after analyzing the features of hospital, such as the size of the hospital and the average number of patients they see, they give health facilities a set amount of budget per year. And at the beginning of the year, SHIs will provide each hospital 80% of the assigned global budget to help hospitals maintain normal operation.[19] If hospitals use their resources efficiently, the rest 20% of the budget will become their pure revenue. If health facilities overuse the budget a lot, then SHI agencies can refuse to pay the rest 20% at the end of the year as a punishment. Although hospitals can generate revenue from other things such as service fee and medicine sale, the subsidy of SHI is still important. In theory, this policy of SHI should give health facilities enough incentives to plan their resources strategically. But in practice, there are many problems. First of all, it is difficult to evaluate the global budget in the first place. These SHI agents do not have enough expertise in medicine and treatment to judge doctors' decisions. To control the use of the fixed budget, SHIs rely on some indicators such as "expenditures per admission and their annual growth rates, the proportion of the cost of drugs outside of the

[19]The mechanism is introduced on Sohu News: (http://www.sohu.com/a/217650932_260616)

NCMS (New Cooperative Medical Scheme) drug formulary, the hospitalization rate, and so on"[20]. Urban agencies have stricter inspections that include:

"expenditures per admission, hospitalization days, the reimbursement rate for expenses within the scope of policies, the proportion of the cost of drugs outside of the SHI formularies, the ratio of the number of times of admission to the number of patients, and even several micro indicators of clinical practices such as the criteria for infusing blood and using antibiotics".[21]

Although I haven't collected enough information about how much SHI value each indicator and how they calculate the budget, it is evident that such supervision involves very high transaction costs because SHI agents don't have enough expertise on medicine and treating patients. SHI agencies can certainly get it done by hiring doctors from non-SHI health facilities and evaluate the global budget or analyze the overtreatment. In fact, they tried to put some medicines in different categories: doctors need to ask for approval from hospital first before prescribing those drugs to patients. Either way, because SHI works with a lot of hospitals in China, this management is not going to be very effective: SHIs will spend a lot of human and financial resources on just supervising the behavior of health facilities that they are not good at. As revealed by my interviewee Li, who works at one tertiary hospital in Chongqing, only part of the 20% surplus, if there is any, will be used to compensate doctor's hard work. It exposes the second problem of SHI's strategy-- that hospitals themselves are independent institutions that may have corruption and hierarchy within their system. "in theory, the amount of bonus each department receives will be

[20] Liu Kai, P94
[21] Liu Kai, P95

determined by the proportion of revenue that department generates for the hospital. But some departments get more than they should because of their close relationship with the administrative staff. I won't say more, but you should know that people play with rules here". Therefore, even within the hospital, there are hierarchy and corruptions. Some doctors are left out of the policy, and only some doctors got the bonus. SHI's approach is not giving enough incentives to encourage doctors to perform better because there is another institution in between that adds potential factors for policy inefficiency.

SHI's interaction with patients is very often a headache too. To make it easier for patients to get insurance benefits, SHI agents use a direct reimbursement mechanism.[22] Besides the Big Disease Reimbursement mentioned earlier, the spending of the personal account is also straightforward and easy. Enrollees can buy category A medicines[23] at SHI approved hospitals and pharmacies directly with a swipe of their SHI card. To solve the over-crowded phenomenon in the tertiary hospital, SHIs raise the reimbursement rate for the primary and secondary hospital to encourage them to go somewhere else other than the tertiary hospital. In theory, it should give patients incentives to change their behavior, but in reality, tertiary hospitals are still too crowded. Compared to SHI agents, although patients don't have much negotiation power, they are free to make their choices. There are many reasons why SHIs fails to attract more people to primary and secondary hospitals. First, the overwhelming number of patients, especially those from rural areas, want to take

[22] Official Website of SHI (http://www.chashebao.com/yiliaobaoxian/yibaobaoxiao/)

[23] In China, medicines have category A and B. A is included in SHI benefit, but B is not. Detailed list of drugs in each category is available on the SHI official website, and each city has slightly different categorization.

advantage of the system. One thing we can infer from the report is that public doesn't trust Primary and Secondary hospitals as much, so they will go to the tertiary hospital even for small diseases. In general, the Chinese government structure the system this particular way without further ability to enhance the proper performance. It then makes the three-parties institutional setup pointless.

2) Lack of Communication Caused by Decentralization

The decentralization in a centralized regime also limits the efficient performance of SHI. The lack of communication can be seen in different levels of institutional interactions in Chinese healthcare market. The decentralization has three levels. First, SHIs in different regions have inefficient communications. Second, SHIs lack efficient communication with other insurance covered in Social Security Program. Third, Social Security Program lacks efficient communication with central government. To begin with, SHIs of different regions lack incentives to communicate with each other because the central government created independent financial accounts for each region and let them work with the local government for raising funds. As the investment from central government is limited, different SHIs need to try their best to gain more funds and contain medical costs to ensure normal operation. Because each SHI agency is dealing with different local government, different groups of people and different financial situation, it is hard for them to corporate and to help each other out. For example, the experience of SHI's success in region A may not be applicable at all for region B due to political and economic differences. In fact, this decentralization also makes it hard for all SHIs to have enough financial resources. As the priority of SHI agencies is to secure the funds, agents have to focus a lot on

cost containment than healthcare quality improvement. The independent financial account also limited SHI's flexibility.

Moreover, the organizational establishment of SHI is still outdated that it cannot cope with the need for interaction. Its organizational setup, in each region, includes a provincial joint office, and city SHI offices, county SHI offices, and Community SHI offices. "Although SHI agencies had the responsibility of managing huge amounts of SHI funds, they had no corresponding administrative rank or power. According to the current policy, they had no rights or power to negotiate the prices of drugs,"[24] The central government set up the SHI system in a way that heavily relies on local authorities for funding. Together with its loose connection within SHI, individual agents of SHI will focus on merely completing their routine duties than putting effort to promote quality of healthcare.

If we look at a bigger picture, we can also see that too many institutions are involved in ensuring reimbursement system, which makes the lack of communication problem among departments worse. Chinese governmental system defines that local authorities receive incentives and assigned responsibility from central government. However, the central government wanted the system to seem more transparent in a sense that each branch of the government does not have too much power and have a clear idea of their duty[25]. One example is that the government separated the policy-making and management to better ensure the flexibility of the system and thus accommodate people from different regions. However, in reality, it caused more problems.

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[24] Liu Kai, p112
[25] Li Mingfu (2018)

The official website of Social Security Program laid out specific reimbursement mechanism of Social Health Insurance. SHI is one part of the Social Security program, and others are Unemployment Insurance, Maternal Insurance, Retirement Insurance, and Work Injury Insurance. All insurance mentioned have one personal account and one pooling account. The Financial Department collect all money in the pooling account and redistribute them to each sector of the insurance department, according to the plan each year. It entails that the funding towards SHI is not stable. It will depend on the sum of pooling amount and the demand of other insurance sectors. Moreover, as within SHIs, each insurance department has their own financial account, it is impossible for them to move the funding around to adjust changes. Therefore, this institutional setup gives SHI agencies more incentives to focus on cost containment than on quality enhancement.

Besides, because the central government only gives a very vague guideline of what needs to be done each year, local SHIs do not always act the way the government wanted. For example, in the official document on healthcare reform in 2009, the government only states that the healthcare market needs to keep reforming and become more efficient. As revealed in Doctor Liu's interview with an officer in a tertiary hospital, the interviewee complained that the guideline from central government is not helpful. "They want the hospital to reduce profits, but how much percentage of profits [is it inappropriate]? 3%, 5% or 10%?"[26]

However, because the power of SHIs are too decentralized and government entitled the third party to become SHI agencies, the confusion is destined to happen.

[26] Liu Kai, P105

The central government does not have time and ability to accurately set goals for SHI agents in each region, nor can they accurately assess whether SHI agents are doing their job efficiently. This imbalanced power dynamic neither provides enough incentives for the agents to inspect hospital's performance nor does it offer enough power to the central government to monitor SHIs performance.

3) The Invisible hand

What we just analyzed how the visible institutional structures influence the poor performance of SHIs. In fact, Institutions also exist in a more invisible level, which is the reinforcement of institutional structures and social norms. As we have explained in the theoretical framework, the social structure determines what dialogues are appropriate, and shapes citizen's perception of things through institutional arrangements. History and experience are an accumulation of institutional arrangements that shape the development of a country. I will focus on how economic and political decisions lead to market stigmatization of doctors and how social realities such as inequality in rural and urban areas and one-child policy impact on healthcare market.

a) Market Stigmatization for Doctors

Under the current setup, it seems that SHI's intervention is the only thing that balance doctor's work and payment. However, it is because the institutional setup made the market adjustment impossible: it doesn't allow the free market to determine how much doctors get paid.

China, as a communist state, believes that healthcare is something fundamental and should be included in the welfare system. Citizens who contributed to society deserves medical care when needed. Although the economic market has transformed to free market, this political legacy automatically makes doctors, who are the critical part of healthcare, public. All primary, secondary and tertiary hospitals are public, and doctors work in public enterprise. Patients internalize this message and thus believe that if doctors fail to satisfy their need, doctors deserve to be punished because they fail to complete the fundamental duty as public servants. They also trust doctors in the tertiary hospital more than the ones the primary and secondary hospital.

The institutional setup and public's mentality actively contribute to the lack of mobility for doctors to switch between markets. The healthcare market in China is very much like a monopoly because the government is the single provider of healthcare and it is almost impossible for others to provide such service. Although there are some private hospitals, they are not able to compete with public hospitals at all. And the government wants it that way. They believe that health facilities are essential to have, but if we let doctors be in the free market, they are unable to cut down the health expenditure. It also weakens the role of market forces. For example, if all doctors are in a free market, they all need to have their best performances to have patients. If they do not serve their customers well, they will eventually go out of business. However, since the government is the single provider, doctors know that their service is irreplaceable. Therefore, the quality of healthcare becomes less essential; they can focus more on seeing as many patients as possible, because the more patients they see, the more service fee they earn.

It echoes back to the core issue: the doctor supplies. The shortage of doctors is the very first reason why the government wanted to intervene to make sure healthcare service were accessible. But as the demand for healthcare service went up, the government adopted SHI and further constrained the behavior of doctors without compensating them enough. The bonus is too small to create incentives for doctors to have good performance. As revealed by HealthIntel Asia, an immigration firm founded by former Rubicon Strategy Group partner, who focus on analyzing Asia's healthcare economy, there is a strong trend for Chinese doctors to move to private sector, but lack of institutional support makes it impossible.

In 2014, the concept of Medical Group was officially presented to the public. It is an organization that highlights the well-being of doctors, "they can enjoy much broader freedom to work as their schedule allow and with a much reasonable market-oriented service payment"[27]. This movement is a natural response for calling institutional change. The power of an individual is limited. To fight the institutional power, one needs to create an institution too. In this case, the central government still have more advantage as they don't have any Liability insurance and other legal protections for doctors in private hospitals. There is no medical liability insurance to protect independent doctors from angry patients in the Chinese market. Doctors cannot purchase the existing liability insurance by themselves, and it has to be public hospitals who buy it for doctors. With this, the cost of leaving the public hospital is very high because they lose protections.

[27]Rubicon Strategy Group Archive, available at (https://bullcity.lawyer/investing-in-the-china-hospital-market-is-now-a-good-or-bad-time-part-2/)

Moreover, under the current legal framework, doctors must sign contracts with medical facilities to practice, but the Medical Group is not a medical facility. Therefore, Medical Group needs either to invest more and upgrade itself to a medical facility or to find a partner hospital to corporate. The Medical Group is a critical move in fighting for doctors' right, but it is not strong enough to help doctors in other aspects. For example, there is no market team that can support doctors to build their personal brands and attract patients.

b) The Impact of Social Reality on Healthcare Market

In fact, institutions not only determine how an organization or department works but also shape the social reality which in turn influence our consciousness and behaviors. Therefore, we should keep exploring how the norms interfere with the institutional arrangement in Chinese healthcare market. Two things we will investigate in this thesis is the unequal development and rural and urban areas and the remaining problem of one-child policy.

Unequal Development in Rural and Urban Areas

As we mentioned in the earlier section, a lot of violent actions towards doctors are initiated by people from rural areas. They come a long way to go to the tertiary hospital for better treatment, but their expectation of hospitals is not always met. We can reflect why those people go to tertiary hospitals in the first place: the core reason is that the best medical resources are concentrated in big cities. People from rural areas are associated with lower economic status, less education, and less access to medical resources. However, many individuals didn't choose to stay in rural areas.

Instead, they are forced to be that way. During China's economic reform in the 1980s, the government decided to develop cities on the coast first and left rural areas with agriculture. The economic decision naturally shaped the social reality later on, and citizens gradually internalize the message that urban areas are better to live, have more opportunities to earn money, and the rural regions are not good. As it turns out, the urbanization migration has always been significant. Even in 2016, more than 100,000 people in 11 big cities migrated from rural to urban areas, cities with most significant growth are Guangzhou, Shenzhen, Chongqing, Changsha, and Hangzhou[28].

This message that urban areas are better kept reinforce itself and formed an invisible hand that pushes urban migration. Instead of saying individuals are entirely responsible for this migration, it is more appropriate to say that the institutional arrangement is leading people's behaviors. Because the central government had absolute power of influencing economic behavior, a lot of working opportunities emerged in cities on the coast and stimulated a lot of people to migrate from rural areas and small towns to the big cities on the coast, the rest of the country stay pretty much undeveloped.[29]

As more and more people earn a lot of money in those cities, the opportunity cost of moving back to rural areas get way higher. The big cities become bigger with more skilled labor or businessman. As it boosts economic productivity, it also creates more incentives for policymakers to keep expanding the economy in the city. More resources such as housing, schools, hospitals are implemented to accommodate more people. There is a huge externality of urbanization, both positive and negative. For

[28] Specific charts can be found on Sohu News (http://www.sohu.com/a/139516741_350221)
[29] Li Mingfu (2018)

example, the negative externalities of urbanization are the air pollution, the devaluation of property, and the occurrence of crime[30]. Urbanization and Externalities, Shiva Raj Adhikari, to ensure good economic performance, the government need to keep allocating more resources to the cities to ensure good economic performance.

As more and more people shift from rural to urban areas for working and education opportunities, the development of the rural regions is further hindered. This norm creates a class issue: people from urban areas are better than those in rural areas. Thus, Skilled labor, doctors, teachers, do not find enough incentives to go into those areas. Take doctors as an example. Statistical Report of Medical care Industry revealed in 2012 that 87.5 percent of medical graduates have high expectations of their career and want to stay in big cities. Less than 5 percent of total medical graduates are willing to go to rural primary hospitals. In terms of the status quo of rural hospitals, In 2012, there are 1.126 million doctors in rural areas, but they need to serve in 660 thousand rural hospitals. Rural areas need at least 530 thousand more doctors to reach the equilibrium of supply and demand in rural areas[31]. Recent medical graduates don't want to go to rural areas or become doctors in general because they don't get paid well, and the tertiary hospital has very high competition. The opportunity cost of being a doctor is too high in China. However, without enough doctor supply, there is no way to improve and ensure healthcare service quality.

What is worse is that people from rural areas themselves internalize the powerlessness and believe that it is natural the public infrastructure and resources are

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[30] Shiva Raj Adhikari, Urbanization and Externalities P1

[31] Supplementary materials can be found at (http://zqb.cyol.com/html/201208/23/nw.D110000zgqnb_20120823_1-07.htm)

concentrated in urban areas. With the coverage of insurance, they want to take advantage of their insurance plan, because they see it as a privilege of them to do that and because there are no barriers to the tertiary hospital, they go very often. When they overwhelmed to the tertiary hospitals, it becomes harder to ensure medical care quality. Angry patient issues are more likely to happen. But the fact that doctors don't want to move to primary, secondary hospitals, especially those in rural areas, further contribute to the over-crowding issue of tertiary hospitals.

Remaining Problem of One-Child Policy

Besides the urbanization problem, the one-child policy also profoundly impacted the efficiency of the healthcare market. As introduced earlier, SHI is one component of Social Security Program, and SHI shares financial resources with other insurances. There was a baby-boom period. In 1978, the one-child policy was written in the constitutional law of China, stating that one-child policy, is needed to fit with the social and economic development reality. Moreover, China already had family planning policy in the early 1970s, and fertility rates had already dropped sharply[32]. Although the one-child policy is no longer active since 2013, the effect of this policy still influences other sectors.

Now the population in China has an aging problem. In 2010, the population of elder people (over 60 years old) was 178 million, but in 2015, it increased to 221 million, which equals one-fifth of the entire world elderly population or half of the Asian population. Zhiyan Consulting Group predicts that in 2025, the elder

[32] Zhang Junsen, The Evolution of China's One-Child Policy

population in China will exceed 300 million[33]. Because Retirement Insurance is also part of Social Security Program, the growing population of more aged people add a lot of pressure on the government. It means that finance department needs to spend more pooling funds to Retirement Insurance Department. Within the budget, it indicates that fewer resources can be distributed to SHI, and thus hinders its ability to improve medical care system.

IV. Reflection on Future Reforms and Conclusion

So far, I have identified several essential problems in Chinese healthcare market, including over prescription, decreasing supply of doctors, increasing violent attack towards doctors, and poor physical health situation of doctors. These problems reflect deeper problems of institutions. There are many levels of institutional inefficiencies that force SHI agencies to be a passive reactor. Although SHI agencies are on the right track of improving healthcare quality, the social and political context does not support SHI's best performance. However, granted that the healthcare reform in China has created many problems in the market, it has also made some significant progress. Besides the indicators such as life expectancy and child mortality rate, the proportion of citizens that are covered by insurance also increased significantly.

The benefit of critically analyzing the inefficiencies is also very important, especially for countries such as China, because we need to distinguish whether current problems are temporary or not. More specifically, if the reason is that the

[33] Zhiyan Consulting Group (2017)

institutional arrangements have not fully adapted to the new market and policy changes, we should be more patient because for any structural changes, there will be a transitional period. With that in mind, some institutional inefficiencies I identified such as SHI's outdated organizational setup, are temporary but others are not. The biggest problem right now is that the government put a lot of burden on doctors. The unfavorable market situation prevents many medical graduates from entering the field. Without enough good doctors, the medical care system is never going to be successful. Government spend too much money on SHIs and is too optimistic about their ability improving the efficiency in healthcare market. I think government need to rethink about the role of SHI, directly target on improving doctors' salary and benefits, and provide good amount of institutional supports for doctors to shift to the private sector. When that critical achievement is made, the power dynamic among doctors, SHIs, and patients will all change. Therefore, the future policies should specifically target on how to provide more financial and other incentives for doctors.

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